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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,891	07/26/2000	Yuji Tsujimori	1934.64567	8030
24978	7590	05/07/2004	EXAMINER	
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			GROSS, KENNETH A	
			ART UNIT	PAPER NUMBER
			2122	14
DATE MAILED: 05/07/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/625,891

Applicant(s)

TSUJIMORI ET AL.

Examiner

Kenneth A Gross

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to the amendment filed February 10th, 2004.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-8 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically, Claims 1, 2, 5, and 6 make reference to a “master thread” and a “non-master thread” which is not enabled in the specification. The specification talks about master and non-master threads on Pages 16 and 17, but it never makes reference to a plurality of threads containing both a master and non-master thread. The specification only details certain scenarios where the active thread can be either a master or non-master thread, but does not teach both types of threads existing on a compiler device. Furthermore, the specification does not distinguish between master and non-master threads by teaching the difference between the two types of threads. Clarification is requested.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzle et al. (U.S. Patent Number 6,209,066).

In regard to Claim 1, Holzle teaches a multi-threaded (Column 7, lines 50-53) virtual machine that makes use of a dynamically allocated interface area (Column 7, lines 32-36). Included in the system is a compiler device (Figure 13, item 1120), which generates bytecode containing methods that get called in a program (Column 22, lines 30-62). Although Holzle does not explicitly teach a master thread and a non-master thread, typically a plurality of threads in an application program contain both a main or parent thread and children threads. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to build a compiler device to generate code for performing a procedure call in a program having a plurality of threads, making use of an interface area that is dynamically allocated for a thread, when said plurality of threads are processed in parallel, as taught by Holzle, where the threads contain a master and non-master thread, since this is a typical and well-known hierarchy of threads in an application program.

In regard to Claim 5, Claim 5 is a medium claim that corresponds to device Claim 1, and Claim 5 is rejected for the same reasons as Claim 1, where Holzle teaches a medium for said device of Claim 1 (Column 32, lines 17-56).

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6. Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over “C: The Complete Reference, Third Edition”, by Herbert Schildt, 1995 (hereinafter Schildt) in view of Holzle et al. (U.S. Patent Number 6,209,066).

In regard to Claim 2, Schildt teaches that C has a function “void *malloc(size_t size)”, which allocates a section of memory from the system stack (Chapter 5 – “Pointers”, Section – “C’s Dynamic Allocation Functions”). The function returns, and hence generates, the address of an interface area that was dynamically generated and saves the address in a pointer. In the source code, a pointer with a pseudonym, and not the address of the interface area itself represents the interface area. When the pointer is made reference to in the source code, the compiler converts it from a source code reference into the address allocated dynamically by malloc(), which is code that performs a direct reference to the interface area (Chapter 5 – “Pointers”, Section – “The Pointer Operators”). Schildt does not teach a plurality of threads that use the interface area. Holzle, however, teaches a multi-threaded (Column 7, lines 50-53) virtual machine that makes use of a dynamically allocated interface area (Column 7, lines 32-36). Holzle does not explicitly teach a master thread and a non-master thread, typically a plurality of threads in an application program contain both a main or parent thread and children threads. Holzle does not explicitly teach the interface area is dynamically allocated for the non-master thread when at least one of the plurality of threads is processed. However, when a thread is processed, it must have a memory area allocated to it, so that the thread can find and utilize the area when the thread is running in the application program. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to develop a compiler device with code generating means for generating code for determining the address of a dynamically generated interface area, and a

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code converting means for converting a reference to the interface area in the source program to code for performing the reference to the interface area, as taught by Schildt, where the with a plurality of threads used by the dynamically generated interface area, as taught by Holzle, since this allows multiple threads to use an interface area generated only once, and the multiple threads comprising a master thread and a non-master thread, since this is a typical and well-known hierarchy of threads in an application program, and the interface area is allocated for the non-master thread when at least one of the threads is processed, since when a thread is processed, it must have a memory area allocated to it, so that the thread can find and utilize the area when the thread is running in the application program.

In regard to Claim 6, Claim 6 is a medium claim that corresponds to device Claim 2, and Claim 2 is rejected for the same reasons as Claim 1, where Holzle teaches a medium for said device of Claim 2 (Column 32, lines 17-56).

For specific rejections of Claims 3, 4, 7, and 8, see the office action mailed on March 26th, 2003.

Response to Arguments

7. Note, that when an amendment is filed, it is necessary to cite exactly where in the specification the newly amended limitations are taught, so that it is clear to the examiner that no new material has been added to the claims that do not appear in the specification.

8. Applicant's arguments filed February 10th, 2004 have been fully considered but they are not persuasive.

In regard to Claim 1, the applicant argues that Holzle does not teach an interface area that is dynamically allocated for a non-master thread. However, Holzle does teach an interface area that is allocated for all threads of a program, and thus is allocated for non-master threads (Figure 3). Also, Holzle teaches separate allocation areas for multiple threads as prior art in Figure 2a.

In regard to Claim 2, the applicant argues that Holzle fails to teach dynamic memory allocation of a non-master thread processed in parallel to the master thread. However, a non-master thread or child thread is an obvious addition to a multi-threaded environment, because it creates synchronization in a thread hierarchy. For support of this, see the "Java Threads, 2nd Edition" reference, which teaches in section 10.1 the concept of parent/children threads and a thread hierarchy. Furthermore, the applicant argues that Holzle does not teach that the interface area is allocated when a thread is processed. However, when a thread is processed, it must have a memory area allocated to it, so that the thread can find and utilize the area when the thread is running in the application program.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542. The examiner can normally be reached on Mon-Fri 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KAG



TUAN DAM
SUPERVISORY PATENT EXAMINER